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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,410	10/16/2002	Michael Cavaretta	201-0222	6736

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EXAMINER	
JARRETT, SCOTT L	

ART UNIT	PAPER NUMBER
3623	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/065,410	CAVARETTA, MICHAEL	
	Examiner	Art Unit	
	SCOTT L. JARRETT	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Non-Final Office Action is in response to the request for continued examination filed February 21, 2008. Currently Claims 1 and 3-18 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 21, 2008 has been entered.

Response to Arguments

3. Applicant's arguments, see Paragraph 2, Page 2, filed February 21, 2008, with respect to the rejection(s) of claim(s) 1 and 3-18 under Lang, U.S. Patent No. 6,807,518 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Gustafsson et al.

It is noted that the concept of joining (aggregating, consolidating, associating, etc.) a vast array of data on consumers, include consumer purchase behavior, and then mining the aggregated data (e.g. data warehouse) is a common and widely practice

business process wherein the data mining of customer data including purchase history, customer surveys (satisfaction, loyalty, product reliability; see at least: Graver, Using Data Mining For Customer Satisfaction Research) and the like provide businesses with insight into customer behavior as well as insight into the products they purchase/use (quality, performance, etc.; see at least: see at least: Majeske, Automobile Warranty Data Predictive Models For Interpreting Engineering Design and Process Changes; and Yang et al., Two-Dimensional Reliability Modeling From Warranty Data).

Additionally the link between quality and reliability (expressed in terms of maintenance, repair, service/warranty work) and customer satisfaction with a product is well known and commonly accepted (see at least: Larson, Ford Puts Quality in Human Hands; Whiting, Automakers Rev Up Data-Mining Efforts; Gutstafsson et al., Measuring and Managing the satisfaction-loyalty-performance links at Volvo).

Further the use of customer satisfaction surveys tied to specific products owned by specific consumers in an effort to predict the customer satisfaction for customers interested in the product who do not currently own the product is likewise old and very well known. For example Consumer Report's Annual Auto survey polls owners of existing automobiles on their satisfaction with there automobile wherein the survey includes reliability data reported in problems per car; wherein the express purpose of this annual survey is to enable potential car buyers to "predict" their own satisfaction (see at least Simiso et al., Automobiles: Quality Issue Still Plagues Detroit and Are today's cars more reliable).

It is noted that the applicant did not challenge the officially cited facts in the previous office action(s) therefore those statements as presented are herein after prior art. Specifically it has been established that it was old and well known in the art at the time of the invention that:

- there exists a plurality of well-known and widely used mathematical, statistical and/or computational approaches/methods/techniques for analyzing customer data (e.g. customer satisfaction data) including but not limited to predictive modeling/analysis, data mining, machine learning, supervised machine learning, decision tree, decision rules, recursive modeling, logistic regression, artificial intelligence and the like wherein the mathematical, statistical and/or computational approaches/methods/techniques are directly substitutable; and
- to integrate (aggregate, combine, join, etc.) various sources of customer data in order to construct customer models.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 4-8 and 10-17 are rejected under 35 U.S.C. 103(a) as being obvious over Hayes, Bob, Measuring Customer Satisfaction: Survey Design, Use and Statistical Analysis (1998) in view of Gustafsson et al., Measuring and managing the satisfaction-loyalty-performance links at Volvo (2002).

Regarding Claims 1 and 12 Hayes teaches a system and method for constructing a satisfaction prediction model (number, graph, parameter, value, equation, index, generalization, function, etc.) for motor vehicle buyers comprising (Paragraphs 2-4, Page 86; Pages 83-84; Paragraph 3, Page 101; Last Paragraph, Page 116; Pages 118-119):

- presenting a buyer satisfaction survey to at least a portion of a buyer base for one or more motor vehicles (Pages 83-84; Paragraphs 2-3, Page 93; Last Paragraph, Page 114; Paragraph 1, Page 116; Figures 2.6, 6.4);

- the customer satisfaction survey including buyer transaction and warranty data (Last Paragraph, Page 5; Figures 2.6 6.4);

- constructing a satisfaction prediction (generalization, estimation, projection, extrapolation, inferring, generalized, etc.) model (number, function, equation, metric,

graph, curve, etc.) for at least one motor vehicle buyer that has not completed the survey based on the aggregate buyer satisfaction (Last Paragraph Page 83, Page 84; Paragraphs 2-4, Page 86; Paragraphs 2-3, Page 93; Paragraph 3, page 101; Paragraphs 3-4, Page 123); and

- utilizing the prediction model to calculate and output a prediction of buyer satisfaction for a motor vehicle (summary scores/indices, generalization of buyers based on buyer sample; Paragraphs 2-3, Page 93; Last Three Paragraphs, Page 119; Paragraphs 2-3, Page 93; Paragraph 3, Page 101).

While integrating (aggregating, joining) various sources of customer data in order to construct customer models is old and very well known, for example aggregating of motor vehicle customer satisfaction data and warranty data (see at least: Majeske, Automobile Warranty Data Predictive Models For Interpreting Engineering Design and Process Changes; and Yang et al., Two-Dimensional Reliability Modeling From Warranty Data), Hayes does not expressly teach joining buyer survey response data with the buyer's transaction and warranty claim data to create an aggregate of buyer satisfaction for buyers that completed the survey as claimed.

Gustafsson et al. teach joining (aggregating, linking, consolidating, merging, etc.) a plurality of buyer data including survey responses, satisfaction, transaction and quality (Column 2, Last Paragraph, Page 252; "These surveys measure customer satisfaction with the dealer, with the vehicle after two months of ownership and with the workshop or

service process", Column 2, Paragraph 1, Page 253; Column 2, Paragraphs 2-3, page 253; Column 2, Paragraph 1-2, Page 256; Figures 2,4) in an analogous art of collecting and analyzing motor vehicle customer satisfaction data for the purposes of understanding the links/drivers between customer satisfaction, loyalty and business performance (Abstract; Column 1, Paragraph 1, Page 258; Figure 1).

Gustafsson et al. further teach constructing a satisfaction prediction model for at least one motor vehicle buyer that has not completed the survey based on aggregate buyer satisfaction data (Column 2, Last Bullet, Page 252, Column 2, Page 253; Column 2, Paragraph 2, Page 255; Column 2, Paragraph 1, Page 256; Column 2, Paragraph 3, Page 257; Figures 1-4, Table 1); predicting buyer satisfaction for a motor vehicle buyer (Column 2, Last Bullet, Page 252, Column 2, Page 253; Column 2, Paragraph 2, Page 255; Column 2, Paragraph 1, Page 256; Column 2, Paragraph 3, Page 257; Figures 1-4, Table 1) and outputting a prediction of motor vehicle buyer satisfaction based on the processed input data (Column 2, Last Bullet, Page 252, Column 2, Page 253; Column 2, Paragraph 2, Page 255; Column 2, Paragraph 1, Page 256; Column 2, Paragraph 3, Page 257; Figures 1-4, Table 1).

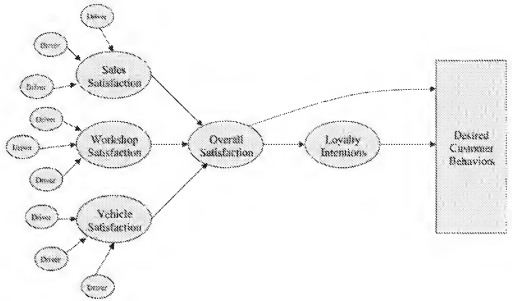

Figure 2 Volvo's framework for integrating quality, satisfaction, loyalty, and profits

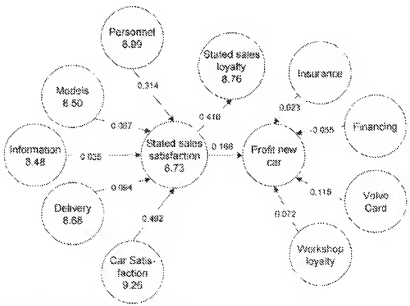

Figure 4 Sales satisfaction model for Volvo dealers

It would have been obvious to one skilled in the art at the time of the invention that the system and method for constructing a satisfaction prediction model for motor vehicle buyers as taught by Hayes would have benefited from joining the buyer's survey response with the buyers transactional and warranty claim data to create an aggregate of buyer data in view of the teachings of Gustafsson et al.; the resultant system/method enabling motor vehicle manufacturers to understand the links/drivers between customer satisfaction, loyalty and business performance (Gustafsson et al.: Abstract; Column 1, Paragraph 1, Page 258; Figure 1).

Regarding Claim 3 Hayes does not expressly teach predicting consumer behavior for a *potential* motor vehicle buyer as claimed.

Gustafsson et al. predicting consumer behavior for a potential motor vehicle buyer (Column 2, Last Bullet, Page 252, Column 2, Page 253; Column 2, Paragraph 2, Page 255; Column 2, Paragraph 1, Page 256; Column 2, Paragraph 3, Page 257; Figures 1-4, Table 1) in an analogous art of collecting and analyzing motor vehicle customer satisfaction data for the purposes of understanding the links/drivers between customer satisfaction, loyalty and business performance (Abstract; Column 1, Paragraph 1, Page 258; Figure 1).

It would have been obvious to one skilled in the art above that the system and method for collecting and analyzing motor vehicle customer satisfaction data as taught

by the combination of Hayes and Gustafsson et al. would have benefited from predicting consumer behavior for a potential motor vehicle buyer in view of the teachings of Gustafsson et al.; the resultant system/method enabling businesses to understand the links/drivers between customer satisfaction, loyalty and business performance (Gustafsson et al.: Abstract; Column 1, Paragraph 1, Page 258; Figure 1).

Regarding Claims 4-8, 11 and 13-17 Hayes does not expressly teach constructing a satisfaction prediction model wherein the buyer satisfaction prediction model is constructed/implemented using machine learning, decision tree, recursive modeling, neural network or logistic regression as claimed.

Official notice is taken that there exists a plurality of well-known and widely used mathematical, statistical and/or computational approaches/methods/techniques for analyzing customer data (e.g. customer satisfaction data) including but not limited to predictive modeling/analysis, data mining, machine learning, supervised machine learning, decision tree, decision rules, recursive modeling, logistic regression, artificial intelligence and the like wherein the mathematical, statistical and/or computational approaches/methods/techniques are directly substitutable.

Support for this officially cited fact can be found in at least the following references: Wilpen, Research prospective on neural network forecasting; Majeske, Automobile Warranty Data Predictive Models for Interpreting Engineering Design and Process Changes; Dispensa, Using logistic regression with customer satisfaction data;

and Behara et al., Modeling and evaluation service quality measurement using neural networks.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for collecting and analyzing motor vehicle buyer satisfaction data as taught by the combination of Hayes and Gustafsson et al. would have employed any of a plurality of well known mathematical, statistical and/or computational approaches/methods/techniques in view of the teachings of official notice.

Regarding Claim 10 Hayes teaches a system and method for modeling motor vehicle buyer satisfaction comprising:

- receiving input data including survey, purchase and warranty data (Last Paragraph, Page 5; Paragraph 1, Page 28; Pages 83-84; Paragraphs 2-3, Page 93; Last Paragraph, Page 114; Paragraph 1, Page 116; Figure 6.4);

- processing the input data (Last Paragraph Page 83, Page 84; Paragraphs 2-4, Page 86; Paragraphs 2-3, Page 93; Paragraph 3, page 101; Paragraphs 3-4, Page 123); and

- outputting a prediction of motor vehicle buyer satisfaction for a buyer that has not completed a survey based on the processed input data (Paragraphs 2-3, Page 93; Last Three Paragraphs, Page 119; Paragraphs 2-3, Page 93; Paragraph 3, Page 101).

Hayes does not expressly teach that the input data includes warranty *claim* data as claimed.

Official notice is taken that analyzing warranty claim data (service, repair, maintenance records, information, etc.) is old and very well known as a method for understanding and/or quantifying product quality, reliability and/or customer satisfaction.

Gustafsson et al. teach joining (aggregating, linking, consolidating, merging, etc.) a plurality of buyer data including survey responses, satisfaction, transaction and quality (Column 2, Last Paragraph, Page 252; "These surveys measure customer satisfaction with the dealer, with the vehicle after two months of ownership and with the workshop or service process", Column 2, Paragraph 1, Page 253; Column 2, Paragraphs 2-3, page 253; Column 2, Paragraph 1-2, Page 256; Figures 2,4) in an analogous art of collecting and analyzing motor vehicle customer satisfaction data for the purposes of understanding the links/drivers between customer satisfaction, loyalty and business performance (Abstract; Column 1, Paragraph 1, Page 258; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for constructing a satisfaction prediction model for motor vehicle buyers as taught by Hayes would have benefited from joining the buyer's survey response with the buyers transactional and warranty claim data to create an aggregate of buyer data in view of the teachings of Gustafsson et al.; the resultant system/method

enabling motor vehicle manufacturers to understand the links/drivers between customer satisfaction, loyalty and business performance (Gustafsson et al.: Abstract; Column 1, Paragraph 1, Page 258; Figure 1).

6. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayes, Bob, Measuring Customer Satisfaction: Survey Design, Use and Statistical Analysis (1998) in view of Gustafsson et al., Measuring and managing the satisfaction-loyalty-performance links at Volvo (2002) as applied to claims 1 and 4-18 above, and further in view of Kuntala et al., U.S. Patent Publication No. 20030212691.

Regarding Claims 9 and 18 while factor analysis is old and very well known in quality and/or customer satisfaction surveys Hayes does not expressly teach identifying and ranking a set of independent variables based on the aggregate buyer satisfaction data as claimed.

Kuntala et al. teach identifying and ranking a set of independent variables based on aggregate data (Paragraph 0007, 0089-0090) in an analogous art of predictive modeling/analysis for the purposes of determining the importance of attributes (variables, parameters) of the predictive models (Abstract; Paragraphs 0004-0005, 0024).

Kuntala et al. further teach the well-known utilization of supervised (machine) learning, regression analysis, artificial intelligence, Bayes network analysis and the like to generate predictive models (Paragraphs 0005, 0024, 0033).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for colleting and analyzing motor vehicle buyer data in

order to generate predictive models and satisfaction drivers as taught by the Hayes would have benefited from ranking a set of independent variables in view of the teachings of Kuntala et al.; the resultant system/method enabling users to minimize the amount of data collected and analyzed by identifying the "important attributes" of the predictive model(s) (Paragraphs 004, 0024).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- WebFocus Draws the Picture For Ford's Warranty Business (2000), teaches a the extension of Ford's well known 126 Report to an online system and method for warranty claims analysis and prediction (e.g. trends) using a plurality of collected and stored warranty claim data (Ford's Warranty Counseling Process) wherein "Ford's warranty department is using it to help dealers understand what's happening in their business, which means lower warranty expenses and happier customers."

- Graver, Try new data-mining techniques (2002), teaches the utilization of a plurality of well known data mining techniques (decision trees, neural networks, multiple regression) to drive continuous improvement based on mined customer satisfaction data.

- Graver, Using Data Mining For Customer Satisfaction (2002), teaches a system and method for data mining a plurality of customer response data in order to determine aggregate customer satisfaction.

- Whiting, Automakers Rev Up Data-Mining Efforts (2003), teach the use data mining of warranty claim data to improve automobile dealer service operations ("Ford Motor Co. is leveraging nearly a terabyte of warranty claims data to help 10,000 dealer's improve service operations."). Whiting further teaches that Ford's Global Warranty Measurement System "helps Ford lower its warranty expenses; Lollar says the real goal is to help dealers improve customer service. Ford has provided basic printed reports to

dealers for two years, but last year the company implemented a system that provides dealers with Internet access to monthly WebFocus reports..."

- WebFocus Draws the Picture for Ford's Warranty Business (2002), teaches Ford's system and method for analyzing a plurality of warranty repair and claim data in order to improve customer satisfaction and dealer service operations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT L. JARRETT whose telephone number is (571)272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott L Jarrett/
Primary Examiner, Art Unit 3623